

Amendments to the Claims

1. (Amended) A water current measuring system comprising:

an ROV, the ROV being operable to move in a vertical direction in a water column and to collect data while moving in the vertical direction in a water column;

an ADCP coupled to the ROV, the ADCP being operable to move in a vertical direction in a water column and to collect data while moving in the vertical direction in a water column; and

a computer system for receiving and processing the collected ADCP data and the collected ROV data and displaying processed data in real time as the ADCP and ROV are moving in the vertical direction through a water column;

wherein the processed data includes depth and heading data from the ADCP data if such depth and heading data is of a sufficient quality.

2. (Original) The system of claim 1, wherein the face of the current profiler on which its acoustic transducers are attached is downward-facing.

3. (Original) The system of claim 1, wherein the face of the current profiler on which its acoustic transducers are attached is upward-facing.

4. (Original) The system of claim 1, wherein the system is used to measure water currents in a deep-sea water column.

5. (Original) The system of claim 4, wherein the deep-sea water column is adjacent to a drilling and/or production riser used in drilling for oil, gas, or other substances.

6. (Original) The system of claim 1, wherein the ADCP is shrouded.

7. (Original) The system of claim 1, further comprising a shroud coupled to and covering the ADCP and including an opening for the transmission and receipt of signals by the transducers of the ADCP.

8. (Amended) A method for processing water current measurements in real time, comprising the steps of:

receiving depth and heading data from an ROV as the ROV is moving in the vertical direction through a water column, the data being representative of and associated with a depth cell of the water column being traversed by the ROV;

receiving from an ADCP as the ADCP is moving in the vertical direction through a water column water current velocity, the data being representative of and associated with a depth cell of cells within a water column being traversed by the ADCP;

receiving depth and heading data from the ADCP if the depth and heading data of the ADCP is substantially free of interference;

processing the current velocity data from each depth cell into data associated absolute depth;

assigning absolute depth data to virtual bins;

processing the data for each bin; and

outputting the data at a regular interval.

9. (Original) The method for processing water current measurements of claim 8, further comprising the step of storing the depth and heading data received from the ROV or the ADCP.

10. (Original) The method for processing water current measurements of claim 8, further comprising the step of storing the current velocity data at a second regular time interval.

11. (Original) The method for processing water current measurements of claim 8, further comprising the step of manually stopping the gathering of data by the current profiler.

12. (Original) The method for processing water current measurements of claim 11, further comprising the step of storing the processed data for each bin.

13. (Original) The method for processing water current measurements of claim 8, wherein the current profiler is rigidly attached to the ROV; and wherein the face of the current profiler on which its acoustic transducers are attached is downward-facing.

14. (Original) The method for processing water current measurements of claim 8, wherein the current profiler is rigidly attached to the ROV; and

wherein the face of the current profiler on which its acoustic transducers are attached is upward-facing.

15. (Original) The method for processing water current measurements of claim 8, wherein the step of outputting the data at a regular interval comprises the step of providing a graphical display of the processed data.

B' (cont'd)
16. (Amended) A method for measuring water currents in real time, comprising the step of receiving and processing data in real-time from an ADCP, including depth and heading data, as the ADCP is moving in the vertical direction through a water column, the data from the ADCP being associated with and representative of a depth cell in the water column being traversed by the ADCP.

17. (Original) The method of claim 16, wherein the ADCP is coupled to an ROV.

18. (Original) The method of claim 17 wherein the data is received and processed at a computer system remote from the ADCP.

19. (Original) The method of claim 17 wherein the step of processing the data comprises the step of converting data from the frame of reference of the ADCP to a fixed frame of reference.

20. (Original) The method of claim 17,
wherein the data is received and processed at a computer system remote from the ADCP; and

wherein the step of processing the data comprises the step of converting data from the frame of reference of the ADCP to a fixed frame of reference.

B1 (incl.)
21. (Original) The method of claim 20, wherein the data received by the computer system for processing includes data indicative of the water current velocity in the profiling range of the ADCP.

22. (Original) The method of claim 20, wherein the data received by the computer system for processing includes data indicative of the water current heading in the vicinity of the ADCP.

23. (Original) The method of claim 20, further comprising the step of presenting a graphical display of the water current velocity through the water column.
